

CLAIMS

1. Process for replacing an intra-fiber liquid in fibers with a replacement liquid, comprising the following steps; compressing the fiber cake to such a degree that a substantial quantity of the intra-fiber liquid is expressed into the space between the fibers and partially out of the fiber cake, forcibly supplying the replacement liquid to the fiber cake during the compression into the space between the fibers and thus displacing the intra-fiber liquid from the space between the fibers and letting the fibers expand while supplying additional replacement liquid which is thus further absorbed by the expanding fibers.
2. Process according to claim 1, wherein the replacement liquid is cleaner liquid.
3. Process according to claim 1, wherein the replacement liquid contains chemical treating agent.
4. Process according to claim 1 or 3, wherein the replacement liquid is acid or basic for fast acid or base treatment of the pulp fibers.
5. Process according to claim 1 or 3, wherein the replacement liquid contains bleaching chemical.
6. Process according to claim 1 or 3, wherein the replacement liquid contains delignifying agent.
7. Process according to claim 1 or 3, wherein the replacement liquid contains process catalyst.
8. Process according to claim 1 or 3, wherein the replacement liquid contains chelating agent.
9. Process according to claim 1 or 3, wherein the replacement liquid contains fluorescent tracer.

10. Process according to claim 1 or 3, wherein the replacement liquid contains metal ions.
- 5 11. Process according to claim 1 or 3, wherein the replacement liquid contains cationic or anionic polymer.
12. Process according to claim 1 or 3, wherein the replacement liquid contains dying substance.
- 10 13. Process according to claim 1 or 3, wherein the replacement liquid contains inorganic substance.
14. Arrangement for replacing an intra-fiber liquid in fibers with a replacement liquid comprising a device (1, 4, 4a, 5, 5a) for compressing the fiber cake in such a degree that a substantial quantity of intra-fiber liquid is expressed to the space between the fibers and partially out of the fiber cake, a first device (6, 8, 9) for forcibly supplying the replacement liquid to the fiber cake during the compression and a second device (7) for supplying the additional replacement liquid immediately after the device for compression arranged in an expansion area where the fibers are allowed to expand after the compression while absorbing the replacement liquid.
- 15 16. Arrangement according to claim 14 wherein the device for compressing the fiber cake (1, 4, 5) comprises a rotating compression roll (4) and a press (5) arranged opposite the compression roll (4) with a press nip in which the fibers are fed and the device (6) for forcibly supplying the replacement liquid to the fibers during the compression is a compressible fabric (6) with liquid permeability only in the thickness direction arranged as a moving closed loop in at least partly contact with the compression roll (4) where at least a part of the closed loop in the press nip is in contact with the compressed fibers and a device (7, 14) for supplying replacement liquid to the compressible fabric (6).
- 20 17. Arrangement according to claim 14 wherein the device for compressing the fiber cake (1, 4, 5) comprises a rotating compression roll (4a) and a press (5a) arranged opposite the compression roll (4a) with a press nip in which the fibers are fed

and the device (8, 9) for forcibly supplying the replacement liquid to the fibers during the compression comprises radial holes (8) in the compression roll (4a) and a pressurized replacement liquid container (9) arranged in the compression area to supply pressurized replacement liquid through the holes (8) from the inside of the compression roll (4a) into the
5 fibers in the compression area.

17. Arrangement according to one of claim 14-16 wherein the second device (7) supplying the replacement liquid is a trough which has a lower opening 13 at an outlet from the device for compressing the fibers.

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18. System characterized in that it comprises more than one arrangement according to one of claims 14-17, in series.